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| 10/798,401 | 03/12/2004 | Naoya Kamimura | 119066 | 6066 |
| 25944 | 7590 | 04/19/2006 | EXAMINER | |
| OLIFF & BERRIDGE, PLC P.O. BOX 19928 ALEXANDRIA, VA 22320 | | | VARGAS, DIXOMARA | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 2859 | |

DATE MAILED: 04/19/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/798,401

Applicant(s)

KAMIMURA, NAOYA

Examiner

Dixomara Vargas

Art Unit

2859

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 February 2006.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 and 9-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7 and 9-24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 02/03/06 & 03/08/06
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-6, 9, 11-15, 17-21 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshikawa (JP 2001-142279) and Nomura et al. (US 6,708,011 B2) in view of Ishida et al. (US 6,783,906 B2).

With respect to claims 1, 12, 17, 21 and 23, Yoshikawa discloses an image forming apparatus comprising (Figure 1): an endless belt (#21) configured to be rotatably driven (Fig. 1); a plurality of image carriers (#11) disposed in a moving direction of the endless belt (Fig. 1); a plurality of charging units (#12), a charging unit provided for each image carrier of the plurality of image carriers and configured to uniformly charge a surface of an associated image carrier (Fig. 1); a plurality of exposing units, each exposing unit (#13) configured to expose an associated image carrier of the plurality of image carriers charged by the associated charging unit to form an electrostatic latent image on each image carrier of the plurality of image carriers (Fig. 1); and a plurality of developing units (#14), a developing unit provided for each image carrier of the plurality of image carriers and configured to develop the electrostatic latent image on an associated image carrier with a developer of different color to form a developer image (Fig. 1); wherein the endless belt is configured to transfer the developer image formed on each image

Art Unit: 2859

carrier of the plurality of image carriers to form a color image (Fig. 1), the developing unit provided at a most upstream position with respect to the moving direction of the endless belt forms the developer image with a developer of black color wherein each developing unit comprising a developer supplying unit disposed to be in contact with a developer carrier and supplies onto the developer carrier while charging the developer (Fig. 1).

Yoshikawa discloses the claimed invention above except for each developing unit configured to be separable from the associated image carrier and detachable from the image forming apparatus. However, Nomura discloses each developing unit configured to be separable from the associated image carrier and detachable from the image forming apparatus (Abstract). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have each developing unit configured to be separable from the associated image carrier and detachable from the image forming apparatus as taught by Nomura with Yoshikawa's image forming apparatus for the purpose of improving the integrity of maintenance and cutting running cost as taught by Nomura (Column 3, lines 1-3). In addition, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have a developing unit separable from the image carrier, since it has been held that constructing a formerly integral structure in various elements involves only routing skill in the art. *Nerwin v. Erlichman*, 168 USPQ 177, 179. Therefore, one skilled in the art would have a developing unit separable from the image carrier in order to suit the needs of the user of the device.

In addition, Yoshikawa and Nomura disclose the claimed invention as stated above except for the developer of black color is configured to be more chargeable than developers of other colors. However, Ishida discloses the developer of black color is configured to be more

chargeable than developers of other colors (Column 15, lines 32-52). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have a developer of black color configured to be more chargeable than developers of other colors as taught by Ishida with Yoshikawa and Nomura's image forming apparatus for the purpose of decreasing the abrading force of the black toner against the PC surface as taught by Ishida.

3. With respect to claims 2 and 13, Yoshikawa discloses the developing unit provided at the most upstream position retrieves residual developer on the endless belt by electrically moving the residual developer (Fig. 1).

4. With respect to claims 3 and 14, Yoshikawa discloses a developer charging unit that charges the developer on the endless belt in a reverse polarity to a charging polarity of the developer (translation, paragraph 19).

5. With respect to claims 4 and 15, Yoshikawa discloses the image forming apparatus operates in a plurality of modes including; a normal mode in which the developer on the endless belt is charged by the developer charging unit and electrically moved to the image carrier provided at the most upstream position in a state where the image carrier provided at the most upstream position is exposed to light by the exposing unit (translation, abstract) and a cleaning mode in which the developer on the endless belt is charged by the developer charging unit and electrically moved to the image carrier provided on the most upstream in a state where the image carrier provided at the most upstream is not exposed to light by the exposing unit (translation, abstract).

Art Unit: 2859

6. With respect to claim 5, Yoshikawa discloses a retrieval restoring unit (#50) that temporarily retrieves the developer on the endless belt and restoring the retrieved developer onto the endless belt (Fig. 1).

7. With respect to claim 6, Yoshikawa discloses a bias generating unit (translation, paragraph 49) that applies a bias generating a potential difference to move the developer on the endless belt to the image carrier (translation, paragraph 49).

8. With respect to claims 9 and 18, Yoshikawa discloses the developing unit comprises a developer carrier (#15) disposed to be in contact with the image carrier (Fig. 1) and carries the developer for forming the developer image by developing an electrostatic image on the image carrier (Fig. 1) and the developer carrier is configured to retrieve residual developer on the image carrier (Fig. 1).

9. With respect to claims 11 and 20, Yoshikawa discloses the developing unit employs a polymerized toner as the developer (translation, paragraph 8).

10. Claims 7 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshikawa (JP 2001-142279), Nomura et al. (US 6,708,011 B2) and Ishida et al. (US 6,783,906 B2) in view of Omata et al. (US 6,442,356 B2).

With respect to claims 7 and 16, Yoshikawa and Nomura disclose the claimed invention as stated above in paragraph 2, except for a charging unit disposed to be in non-contact with the associate image carrier. However, Omata discloses a charging unit disposed to be in non-contact with the associate image carrier (Fig. 1, charging unit #32). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have a charging

Art Unit: 2859

unit disposed to be in non-contact with the associate image carrier as taught by Omata with Yoshikawa and Nomura image forming device for the purpose of having an alternate type of charging unit which will performs the same function.

11. Claims 22 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshikawa (JP 2001-142279), Nomura et al. (US 6,708,011 B2) and Ishida et al. (US 6,783,906 B2) in view of Yamamoto (US 5,066,989).

With respect to claim 22 and 24, Yoshikawa, Nomura and Ishida disclose the claimed invention as stated above in paragraph 2, except for the plurality of developing units are arranged vertically and the developing unit for the black developer is at an uppermost position. However, Yamamoto discloses the plurality of developing units are arranged vertically and the developing unit for the black developer is at an uppermost position (Figures 1 and 2). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have the plurality of developing units are arranged vertically and the developing unit for the black developer is at an uppermost position as taught by Yamamoto with Yoshikawa, Nomura and Ishida's image forming apparatus for the purpose of rearranging the components of the system in an alternative efficient manner since it has been held that rearranging parts of an invention involves only routine skill in the a rt. In re Japikse, 86 USPQ 70.

Response to Arguments

12. Applicant's arguments with respect to claims 1-7 and 9-24 have been considered but are moot in view of the new ground(s) of rejection.

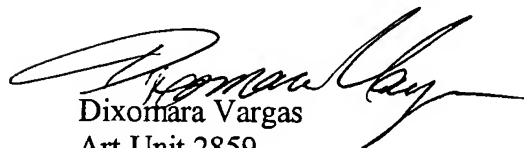
Art Unit: 2859

Conclusion


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dixomara Vargas whose telephone number is (571) 272-2252. The examiner can normally be reached on Monday to Thursday from 8:00 am. to 4:30 pm..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Diego Gutierrez can be reached on (571) 272-2245. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Dixomara Vargas
Art Unit 2859
April 10, 2006



Diego Gutierrez
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